

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371****0572-1000**

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.5)

10/089420INTERNATIONAL APPLICATION NO
PCT/FR00/02369INTERNATIONAL FILING DATE
24 Aug 2000PRIORITY DATE CLAIMED
28 Sep 1999

TITLE OF INVENTION

Electronic Device And Recording System For Measuring Consumer Behaviour To Forecast Media Audience Ratings

APPLICANT(S) FOR DO/EO/US

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Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31)
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
 - a. ☐ is attached hereto (required only if not communicated by the International Bureau)
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made, however, the time limit for making such amendments has NOT expired
 - d. ☐ have not been made and will not be made
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3))
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4))
10. ☒ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter 2 and 35 U.S.C. 1.821 - 1.825
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☒ Certificate of Mailing by Express Mail
23. ☒ Other items or information:

Power of Attorney; Drawings

U.S. APPLICATION NO (IF KNOWN, SEE 37 CFR 1.5) 10/089420		INTERNATIONAL APPLICATION NO PCT/FR00/02369		ATTORNEY'S DOCKET NUMBER 0572-1000	
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24. The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) : <input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1040.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$890.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$740.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$710.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00 ENTER APPROPRIATE BASIC FEE AMOUNT =				CALCULATIONS PTO USE ONLY <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;">\$890.00</td> <td style="width:50%; border: none;"></td> </tr> </table>		\$890.00	
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Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (e))				<table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;">\$0.00</td> <td style="width:50%; border: none;"></td> </tr> </table>		\$0.00	
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CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE				
Total claims	12 - 20 =	0	x \$18.00	\$0.00			
Independent claims	3 - 3 =	0	x \$84.00	\$0.00			
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>				\$0.00			
TOTAL OF ABOVE CALCULATIONS =				\$890.00			
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.				\$445.00			
SUBTOTAL =				\$445.00			
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (f))				\$0.00			
TOTAL NATIONAL FEE =				\$445.00			
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). <input type="checkbox"/>				\$0.00			
TOTAL FEES ENCLOSED =				\$445.00			
				Amount to be:	\$		
				refunded			
				charged	\$		

a. ☒ A check in the amount of **\$445.00** to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **12-0913** A duplicate copy of this sheet is enclosed.

d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

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ELECTRONIC DEVICE AND RECORDING SYSTEM FOR MEASURING
CONSUMER BEHAVIOUR TO FORECAST MEDIA AUDIENCE RATINGS

The present invention relates to a method to forecast audience ratings of radio or
5 audiovisual media programs such as namely television programs (broadcasted as well by
hertzian means as by cable or satellite), radio broadcasts, trailers or broadcast programs.
The present invention also relates to an electronic device, a broadcast receiving means
including this device and a recording system for measuring consumer behaviour for
implementing this method.

10 There is a need to quantitatively forecast the success or acceptance level, in the
opinion of a consumer audience, of a new broadcast intended for a radio or audiovisual
media such as defined above.

To our knowledge, this need of a quantitative forecast is not met since at present
there are only qualitative methods to forecast the acceptance of new programs. These
15 methods rely on a poll with a target sample of potential viewers or listeners, this sample
being most often of a large size (more than 200 persons) and/or consulted for a fairly long
duration (at least 2 hours), with the outcome of:

- first a cost of the method being high since directly related to the size of the target
sample and to the consultation duration,
- 20 - then, an implementation duration of the method being high because of the size of
the sample being surveyed and of the length of result perusal and analysis,
- finally, the reliability of these methods being low and their result at most
qualitative since they are based on the principle of a poll after the end of
broadcasting of the new program or after the showing of a written summary of the
25 new program, not on the principle of a quantitative experimental measure of the
behaviour of viewers/listeners during the whole broadcasting of a new

program placed in a position of actual competition with broadcasts of the same nature being usually broadcasted within the same time slot.

DE-A-4,337,548 describes a device for recording data related to the behaviour of the viewer of a TV receiver connected to a control member, by means of a data supplementing device coordinated with the TV receiver, thanks to which various data among which at least one information related to the program source received and one information related to the viewer are recorded at the TV receiver, optionally worked out and stored and preferably transmitted to a data unit, the said device comprising a first data receiving module arranged in parallel with or, preferably, upwards from a second receiving module external to the TV receiver or outside from the internal inaccessible part of the TV receiver and being connected to the data supplementing device in order that, by means of the first receiving module and the data supplementing device, the signals sent from the control member to the TV receiver are recordable and capable of being decoded and analyzed according to data of interest.

DE-A-3,742,425 discloses recording the functions conditions of a television set with a digital code wireless control member, the control signal being received through a receiver independent and separated from the television set, decoded then transmitted to a recording and call device.

US-A-5,532,732 aims at monitoring program audience when television is broadcast (alike in the United States) in a frame format with the odd number lines being scanned during the first field of a frame and the even number lines being scanned during the second field of a frame, the beam returning to the top during a period of time (called VBI) during which the picture on the television is blank The VBI can be used to broadcast synchronous program information and can be decoded by an electronic device which reads and stores this program information

None of these documents raises the problem of quantitatively forecasting the success of a new audio and/or video program

The present invention aims at overcoming the disadvantages and deficiencies of existing methods to forecast acceptance of a new media program by an audience and, more particularly, at developing a method to replace the audience poll after complete broadcasting of this new program by a precise, continuous and instantaneous quantitative measure (either at distance for cabled viewers/listeners or in an appropriate test room for non-cabled viewers/listeners) of the audience behaviour in

front of this new program placed in a position of actual competition with one or more broadcasts of the same nature being usually broadcasted within the same time slot. Thanks to this precise, continuous and instantaneous experimental measure, the invention aims at providing radio or television broadcast producers, persons in charge of radio or television channel programme planning and managers of film industry with a tool able to minimize the economic risk on the occasion of introducing a new audio/television program or a new film, by developing a method able to quantitatively forecast the audience rating of film trailers and radio or television programs.

The present invention also aims at a method to forecast media audience ratings being able to provide highly precise results while resorting to a reduced size sample, most often not above about 200 persons and preferably between 100 and 200 persons, and/or during a reduced length preferably not above about 1 hour. Another aim of the invention consists in providing a simple and inexpensive electronic device for implementing the method, being able to calculate and show the results according to current standards in the relevant media profession.

According to a first aspect, the present invention thus relates to a device to forecast media audience ratings, comprising:

- at least a recording means of at least a media program to be tested,
- Y media program broadcasting means (100), being able to broadcast the said recording means of the program to be tested as well as at least one media program of the same type as the program to be tested and having a known audience rating, the total number of the programs to be tested and of the programs having a known audience being equal to Y,
- a set of X receiving means (10) for the media programs of the recited type, X being preferably at least 4, each program receiving means (10) being associated with a control member allowing the listener/viewer being placed in front of the said program receiving means to zap from one program to any other available program,
- a main controller (8) linked, directly or not, to the X program receiving means (10) in order to simultaneously broadcast the recording means of the program to be tested on these program receiving means (10), and
- a recording system for measuring media consumer behaviour comprising (i) X sensing means (20) for detecting at any time the identity of the program being listened and/or viewed by each consumer placed in front of each of the X program

receiving means (10), (ii) at least one liaison means (40) for continuously transferring the corresponding information (identity of the program detected at each moment) to an information storage means (50a), (iii) a supervision means (50b) interfaced with each sensing means (20) and able to question the main controller (8) and to permanently scan information present on the liaison means (40), and (iv) a computing means (50c) such as a statistical software, for numerically treating information stored in the storage means (4) and to deliver at least an audience rating value of at least one media program to be tested with reference to at least another media program of the same type and having a known audience rating.

According to the invention, the Y media program broadcasting means (100) may be of a single same type, for instance a video recorder, in which case the forecasting device further comprises recording means for the programs having a known rating and of the same type as the program to be tested, and the main controller (8) is able to simultaneously broadcast these broadcasting means on the program receiving means (10). Alternatively, the Y media program broadcasting means (100) may be of different types, for instance a video recorder and hertzian transmitters, the latter being assigned to the broadcasting of programs having a known rating and of the same type as the program to be tested, and therefore not requiring recording means.

The recording means for the program to be tested and optionally the recording means of the programs having a known rating may be broadcasted, optionally via a medium such as a cassette, by any suitable program broadcasting means being able to send a video signal and/or right and left audio signals to the main controller (8) through standard RCA cables. Each program recording means consists of one or more sequences; in case of multiple sequences on a recording means, the said sequences are separated from each other by an audio signal (hereinafter referred as a “ top “. This top consists for instance of a signal having a frequency between about 1,600 and 2,100 Hz and/or a duration between about 1 and 3 seconds and being recorded on one of the audio ways of a pre-recorded program broadcasting means.

The main controller (8) is able to perform three duties:

- on the one hand, detecting the sequence change tops,
- on the other hand, transmitting this information, through a liaison means (48) such as a telephone cable, to the information storage means (50a), and

- finally generating a UHF signal (video and right channel audio) modulated by the broadcasting means (100) of the program recording means.

A historical file is created in the information storage means (50a) for all occurring events such as program changes, sequence changes on the same program, etc. The information storage means (50a) also includes other files relating to the title and the duration of the broadcasted programs, etc. These files will be later available for the statistical perusal of the study results by the computing means (50c). As is known by the skilled person, the storage means (50a), the supervision means (50b) and the computing means (50c) are usually collected in a single apparatus of the computer type (50) and are functionally related with each other in such a way that the computing means (50c) has each information, coming from the storage means (50a) and the supervision means (50b) via the liaison means (40) and (48), necessary and sufficient to calculate at least an audience rating value of at least a media program to be tested.

According to another aspect, the present invention relates to an electronic device being useful for implementing the aforesaid audience rating forecasting device, comprising a sensing means (20) functionally associated with the control member of a media program receiving means (10) for detecting at any time the identity of the program listened/viewed on the receiving means (10) and for continuously transmitting this information (identity of the program detected at any time) to a computing means (50c). By "functionally associated" according to the present invention it is meant that the means (20) and the control member are not necessarily linked by a physical liaison but are able to communicate between each other, either directly or indirectly, for instance by infrared radiation. This aspect of the present invention will now be explained in the particular context of the means (10) being a television receiver, without the invention being limited to this type of program reception. The receiver (10) conventionally comprises a first remote control infrared decoder functionally associated with a control member. In the electronic device of the invention, the sensing means (20) consists of a second remote control infrared decoder able to detect changes in channels referred to on the receiver (10), i.e. the program changes performed by the viewer. On this second decoder, being preferably placed at a sufficiently short distance from the first remote control infrared decoder in order to receive the same signal as the latter, are grafted on the one hand an interface with a liaison means (40) able to continuously transmit the information - identity of the

channel referred to at any time on the receiver (10) – to the computing means (50c) and on the other hand a device allowing to create an address code to identify the TV receiver (10) concerned by the program changes. For example the second decoder, optionally placed in a box, is placed outside the receiver (10) and in the immediate neighbourhood thereof. The first and second remote control infrared decoders are preferably of a similar nature or type or at least compatible.

The invention also relates to a media program receiving means (10) provided (i.e. equipped) with or comprising the aforesaid described electronic device.

According to another aspect, the invention relates to a recording system for measuring media consumer behaviour comprising:

- X sets each comprising a control member associated with a media program receiving means (10), X being preferably at least equal to 4, the control member allowing to zap from channel to channel on the receiving means (10), and
- X electronic devices of the aforesaid type being functionally associated to the X control members for numerically treating information and delivering audience rating values of the media programs available on the X receiving means (10).

A historical file is created in the storage means (50a) for all occurring events such as program changes, sequence changes on the same program, etc. The storage means (50a) also includes other files relating to the title and the duration of the broadcasted programs, etc. These files will be later available for the statistical perusal of the study results by the computing means (50c).

Alike previously, the computing means (50c) is preferably a statistical treatment software of a known type installed on a computer (50), able to calculate the durations of listening/viewing of the programs identified on the X media receiving means (10) and, from these durations, to deliver instantaneous values and mean values, on a predetermined lapse of time, of the audience ratings of all programs made available (generally by a main controller (8) linked to the X media receiving means) on the X receiving means (10). These values may be delivered under various forms, in particular listings at various time intervals, continuous or discontinuous graphs, etc.

According to a variant of the invention, calculations may be effected by means (50c) in real time, i.e. during program listening, in which case contrary to postponed calculations the information storage means (50a) is no longer functionally isolated from the computing means (50c) but integrated into the latter, information necessary

for calculation being directly and instantaneously retransmitted by the sensing means (20) to the computing means (50c).

The X receiving means (10) are able to receive programs broadcasted by a main controller (8) via a cable (40). For instance the main controller (8) comprises a control
5 box including Y tuners for picking up the audio or audio/video signal from each of the Y program broadcasting means (100) and a multiplexer to address these signals into a single coaxial cable (40) serving the X receiving means (10), the said cable (40) being connected to each receiving means (10) in liaison with a program change processor. Transmission of information - such as the statement of selections made on each
10 receiving means (10) - to the storage means (50a) or, if need be, directly to the computing means (50c) is preferably effected by a telephone type cable (48). The control member is preferably a modified infrared control member on which non essential functions (for example the program complete stop control, bass and treble sound adjustment, still frame control, fast forward and backward, etc) were
15 neutralized for safety. Only functions essential for the correct implementation of the method (program search) and the viewer's comfort (adjustment of image contrast and sound volume) are retained on the control member.

The UHF signal generated by the main controller (8) is sent to a conventional distributor able to amplify this signal on X ways and to send it off by conventional
20 cables (30) (for example of the 75 ohms type) to the antenna inlet of each receiving means (10). The computing means (50c) controls a liaison means (48), such as a bus allowing on the one hand to poll the main controller (8) in order to know whether a sequence change top occurred on one of the channels and on the other hand to poll each of the X sensing means (20) which analyze channel zapping requested by the
25 control members and transmit this information via the liaison means (48). The computing means (50c) placed within the supervision computer (50) scans the various information which reached the main controller (8) via the liaison means (48) and records the events in a file in order to prepare the statistical treatment work, through a suitable software, of the latter information by sorting out the only information useful
30 for computing the audience rating of the media program to be tested.

The audience rating forecasting device, the electronic device and the recording and measurement system of the invention are applicable for the audience forecast of one new media program as well for the simultaneous audience forecast of several, preferably 2, new media programs with reference to one or more, preferably 2 to 4,

media programs having a known audience. For an optimal accuracy of the audience ratings of the new program(s) to be tested while maintaining X within a reasonable limit, it is preferred that the sum of the number of new programs to be tested and the number of programs having a known audience is not above 6. Indeed, above a total
5 number of 6 programs, the audience rating of some programs may become too low to be statistically significant.

In order to optimize the implementation of the invention, it is preferred (except for a remote measuring for cabled viewers) that the number X of media reception means (10) be about 4 to 40, preferably 6 to 20 in order to, while resorting to ,a sample of
10 about 100 to 200 persons, limit the number of sessions of using the system. For a flexible implementation of the method, the sample size may be split into two or more subsets (for instance corresponding to a market segment) of smaller size, optionally gathered in different places.

By “ recording means “ according to the present invention, it is meant on the one
15 hand pre-recorded tapes, being only sound tapes in the case of radio programs or sound and video tapes in the case of television programs and movie or television program trailers, and on the other hand live recording tapes. These recording tapes are preferably lodged in cassettes, audio or video as the case may be, and are broadcasted towards the media reception means via any suitable program broadcasting means,
20 such as tape recorder, radio transmitter, video-recorder, cable, satellite, etc.

By “media program“ according to the invention, it is meant namely radio and television programs, movie or television program trailers, etc. By “media program of the same type “, it is meant programs of the same category as the aforesaid programs, i.e. it is excluded for instance to combine, in the forecasting device of the invention, a
25 radio program with one or more television programs. By “media reception means “ according to the invention, it is meant a radio receiver, a headset for audio programs, a television or computer screen or monitor, a projection screen, etc.

According to yet another aspect, the present invention also relates to a method to forecast a media audience rating able to use the electronic device and/or the
30 forecasting device and/or the recording and measurement system previously described. This method consists in bringing a sample of viewers/listeners being representative of a desired target in a condition of free listening, during a period of time T, of a set of media programs of the same type consisting of at least one program to be tested and at least a program having a known audience rating, in front of a set of

X receiving means (10) for media programs of this type being linked to a main controller (8) broadcasting at least one recording means of at least one program to be tested, the free listening condition being assured by X control members of the X program receiving means (10) and allowing at any time to change program on the X program receiving means (10), the identity of the program being listened/viewed being at any time detected by X detecting means (20) functionally associated to the X control members, and then continuously retransmitting this information to a computing means (50) for numerically handling it in order to

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provide audience rating values for the programs available on the X program receiving means. Contrary to the methods of forecasting the success of advertising films (the listening duration of which generally does not exceed one minute) on the one hand and to the qualitative methods based on a poll (the duration of which frequently reaches about 2 hours), the free listening duration T of the forecasting method of the invention is preferably between about 2 and 60 minutes.

Preferably, in order to standardize the measurement results thus effected, the forecasting method of the invention is first implemented with a set of programs having known audience ratings, the obtained results are compared to those observed by audiometry for the same programs with a sample of a bigger size (for instance a national sample) at one or more reasonably close time intervals, and a first corrective coefficient is calculated from this comparison in order to correct the results of the method implemented in a second place with a set of programs comprising at least a program to be tested.

Also preferably, results obtained by the implementation of the method of the invention are corrected by a second corrective coefficient in order to transform the audience ratings provided by the computing means into projected audience market shares in order to take into account the known audience of programs being unavailable, during the test, on the X program receiving means. Indeed, in order to ensure the reliability of the method of the invention, it is generally sufficient to bring the listeners in a situation of free listening of a set of programs representing at least 80% (preferably at least 90%) of market shares of the relevant media, this set being designated as the dominating program offer as opposed to the marginal program offer designating the other programs collectively representing at most 20% (preferably at most 10%) of market shares of the relevant media. Application of the second corrective coefficient allows to restore by a simple calculation rather than by a direct measurement, the influence of the programs of the marginal offer without for all that harming the forecast accuracy.

By “ viewers/listeners being representative of a desired target “ according to the invention, it is meant persons accustomed to use this type of media during the relevant time slot. Indeed, it matters for the reliability of the forecasting method of the invention and for the accuracy of the results which derive from its implementation that the sample brought into free listening condition be as homogeneous as possible with respect to the consuming habits relating to programs broadcasted within a certain

of each control box, when the listener presses a program selection button, the latter switches on and points out the identity of the selected program to the supervision station (50) and addresses this program to the corresponding television screen. The control box also sends to the supervision station (50) a signal when, on a single television channel, a broadcast change is indicated on the sound tape. During the test, the supervision station (50) receives a signal from the control box (21) and, guided by a timing, records for instance the fact that at the 25th minute of the session the listener placed in cabin (1) zapped from program (101) to program (103), and so on. This set of information is gathered in a double entry table comprising time divided by minutes in columns and cabins (0) to (7) in lines. Moreover, during a pre-test before the placement of the viewers/listeners, the supervision station (50) records a sound signal indicating that, for instance, the program (101) made a broadcast change at the 12th minute. This information is gathered in a double entry table comprising time divided by minutes in columns and programs (101) to (103) in lines. The statistical treatment, by a suitable calculation means within the capability of the skilled person, of information contained in these two double entry tables allows to obtain the audience ratings of each of programs (101) to (103). Assuming that in the real competition situation there is a fourth television program the average audience of which is 10% of the entire 4 programs, then the audience ratings measured for programs (101) to (103) will first be corrected by a corrective coefficient equal to 0.9 before being converted into projected audience market shares.

EXAMPLE 2

Figure 2 schematically shows a second embodiment of an audience rating forecasting device according to the invention.

Four video-recorders (100), (101), (102) and (103) generate a modulated UHF signal (video and right sound channel), a UHF channel being attributed to each video-recorder in order to simultaneously broadcast the sound and video tapes of 4 pre-recorded television programs, one of which includes a new program to be tested. The UHF signal is sent, via the main controller (8), to a distributor (9) which amplifies on 8 ways the signals from the various channels and sends them through 8 video cables of 75 ohms (30), (31) to (37) to the antenna inlet of 8 television receivers (10), (11) to (17) placed in 8 soundproofed cabins (0), (1) to (7) (three only are shown on the figure). To each television receiver, conventionally comprising a first remote control infrared decoder, is associated a control member (not shown on the figure) on which

the non essential functions (program complete stop control, bass and treble sound adjustment, still frame control, fast forward and backward) were neutralized for safety. Moreover, second remote control infrared decoders (20), (21) to (27) (three of which only are shown on the figure) allow to know at any time the program sequence, among the 4 suggested programs, viewed by each listener/viewer placed in a soundproofed cabin in front of a television screen and provided with a headset. At least one of the suggested programs from the video-recorders (100) to (103) consists of several sequences separated from each other by a top consisting of a 1,850 Hz signal of 2 seconds being recorded on the left sound way. The main controller (8) , in order to manage these sound tops, is interfaced with the computer (50) by means of a bus (48) o which it transmits the information of a sequence change on a channel.

Each second remote control infrared decoder detects the changes in programs referred to by the viewer and is interfaced, as hereinafter indicated, with a computer (50) combining an information storage means, a supervision means and a computing means, which records these various changes. The second remote control infrared decoder, optionally placed in a box, is placed at a sufficiently low distance from the first remote control infrared decoder to receive the same signal as the latter (for instance, it is fixed onto the T.V. by means of an adhesive). For the two remote control infrared decoders, there are used integrated circuits SAA3049A of the company PHILIPS SEMICONDUCTORS. On each second remote control infrared decoder is grafted on the one hand an interface with a bus (40) in order to recover the channel zapping information and on the other hand a device (not shown on the figure) allowing to create an address code in order to identify the television receiver concerned by the channel zapping. As a bus (40), one will be preferably select a normalized, bi-directional and sequential bus such as the I²C bus of the company PHILIPS SEMICONDUCTORS. Thanks to the sequential handling of information by this type of bus, it is not necessary to provide a bus directly linking each second decoder to the main controller (8) but it is sufficient that the bus (40) links all second decoders and links the second decoder (20) to the main controller (8). The computing means of the computer (50) generates, through a continuous recording, a historical file of events occurred in each soundproofed cabin (channel zapping or sequence change on a channel) from which the audience ratings values of the programs (101) to (104) are calculated after application, if need be, of corrective coefficients as in example 1.

EXAMPLE 3

Figure 3 schematically shows the main controller (8) present in the audience rating forecasting device of example 2. For simplification, only one of the 8 identical ways monitoring the audio and video signals coming from the video-recorders is shown on figure 3. For simplification, this scheme will be described in terms of functional sub-

5 sets constituting the main controller, the skilled person being able to spot on figure 3 the detailed material elements (diodes, capacitors, etc.) constituting each sub-set. The main controller first comprises 8 ways (60) to (67) identical to the way (60), the left audio channel of which goes through a bell filter consisting of an operational amplifier LF347 aligned on 1,850Hz by adjustment of the 1 k Ω potentiometer. It is

10 amplified by a factor 100 through the second stage then rectified and integrated before being amplified through the third stage and sent onto an inverter LS7404. The signal thus obtained will equal 1 for a frequency between 1,600 and 2,100 Hz for a signal having an inlet amplitude of 200 mV.

Moreover each way such as (60) consists of a UHF modulator such as (70) shown

15 on figure 3, mixing the right sound channel and the video signal and generating a UHF signal, the channel-occupied frequency is adjustable. The eight modulators (70) to (77) are arranged in series, thus allowing generating at string end a signal comprising 8 television channels corresponding to the pre-recorded programs of the video-cassettes. The frequency of each channel must be adjusted in order to avoid

20 overlap with the other frequencies and corresponds to the programming order of the television receiver channels. A 1 k Ω adjustable allows to adjust the video inlet signal and to avoid overflow. The modulator (70) used herein is available e.g. from the company Conrad Electronic GmbH (Hirschau, Germany) under the trade reference 192791. The main controller also comprises a modular jack plug (80) at inlet of bus

25 (48), connected to the computer (50) through an interface (not shown on the figure) such as the Atlas kit marketed by Conrad Electronic GmbH on a Centronics port.

The SCL line (81) and SDA line (82) are protected by two 330 ohms series-connected resistances and are connected to two identical circuits marketed by PHILIPS SEMICONDUCTORS (Eindhoven, The Netherlands) under the designation

30 PCF 8574. The latter are silicon CMOS circuits providing a remote I/O expansion for a microcontroller via a two-lines bidirectional bus (I²C). They consist of a quasi-bidirectional 8-bit port (address) and of a bus interface I²C. One of the circuits for reception serves to send the configuration of the tops coming from the R/S switches and the other circuit for emission allows sending to the switches, under control of the

computer (50), the reset command once the signal is taken into account. Finally, the I²C bus is redirected at the outlet (86) towards the second remote control infrared decoders (20) to (27) via an extension circuit (85) of the I²C bus. Indeed the capacitive reactance limit of 400 pF of the I²C bus restricts the effective communication distances to only a few meters. The circuit (85) used herein is available e.g. from the company PHILIPS SEMICONDUCTORS (Eindhoven, The Netherlands) under the trade designation 82B715. It is a bipolar integrated circuit which, while retaining all operative modes and characteristics of the I²C system, allows to extend the practical separation distance between the components on the I²C bus by using a buffer memory for the data line (SDA) and the clock line (SCL). Finally the main controller (8) has a power supply (87) generating the +12 V, -12 V and +5 V necessary to the arrangement. The 5 V power supply is common to all boxes connected to the I²C bus and propagates by means of the I²C bus.

EXAMPLE 4

Figure 4 shows the setting scheme of each second remote control infrared decoder of the device of example 2. For simplification, this scheme will be described in terms of functional sub-sets constituting the said decoder, the skilled person being able to spot on figure 4 the detailed material elements constituting each sub-set.

A signal from a television control member (preferably complying with standard RC5) is received by a detector-amplifier (90) – here a SB 1620 model available from the company SONY – which drives the negative leading edge of the operational pre-amplifier (91). The latter is provided with a 4 MHz quartz clock (92) (pins 12-13 on the figure) and a turn-on reset circuit (93) (pin 14) and provides to pins 1 to 6 the control code sent by the control member. The pin 18 switches, alternatively going from 1 to 0 at each control sent, which allows knowing when the same control was used several times. The operational pre-amplifier (91) is connected to the decoder (20) itself, the latter being provided with a three-switches box (94) which allows to set up the address of decoder (20) on the I²C bus.

The second remote control infrared decoder (20) - here an integrated circuit SAA3049A of the company PHILIPS SEMICONDUCTORS, the function of which is to check and convert the received coded data into locked binary output data – then sends the relevant information to the main controller (8) via a circuit (95), available e.g. from the company PHILIPS SEMICONDUCTORS (Eindhoven, The

Netherlands) under the trade designation 82B715 and similar to the circuit (85) of example 3.

EXAMPLE 5

Figure 5 schematically shows a third embodiment of an audience rating forecasting device according to the invention. A single video-recorder (100) generates a modulated UHF signal (video and right sound channel), a UHF channel being attributed thereto in order to broadcast the sound and video tape of a pre-recorded television programs consisting of a new program to be tested. The UHF signal is sent, via the main controller (8), to a distributor (9) which amplifies on 8 ways the signal from the UHF channel and sends it through 8 video cables of 75 ohms (30), (31) to (37) to the antenna inlet of 8 television receivers (10), (11) to (17) placed in 8 soundproofed cabins (0), (1) to (7). The symbol \swarrow placed in the centre of each television screen means that the corresponding receiver, for instance provided with a local antenna, is furthermore able to pick-up, during the test time, television programs having a known audience being provided in real time by hertzian means. Setting-up and operation of the system are identical to that of example 2, except of course the fact that only the new program provided by the video-recorder (100) consists of sequences being separated by a sound top.

CLAIMS

1. A recording system for measuring media consumer behaviour comprising:
 - X sets each comprising a control member associated with a media program receiving means and allowing to zap on the said receiving means, the X receiving means being able to receive programs broadcasted via a cable, and each receiving means comprising a first remote control infrared decoder functionally associated with the control member, and
 - X electronic devices each comprising a sensing means functionally associated with the control member for detecting at any time the identity of the program listened on the receiving means and for continuously transmitting the information consisting of the identity of the detected program to a computing means for numerically treating the said information and for delivering audience rating values of the media programs available on the X receiving means,characterised in that, for a precise measure of behaviours and a quantitative audience forecast,
 - the sensing means consists of a second remote control infrared decoder placed at a sufficiently short distance from the first remote control infrared decoder in order to receive the same signal as the latter, and on which are grafted on the one hand an interface with a liaison means for continuously transmitting information to the computing means and on the other hand a device for creating an address code to identify the receiving means concerned by the program changes, and
 - the cable consists of a single coaxial cable serving the X receiving means, X being at least 4, the said cable being grafted onto each media receiving means in liaison with a program change processor.
2. A recording and measuring system according to claim 1, characterised in that the transmission of information to the computing means is effected by a telephone type cable.
3. A device for the audience quantitative forecast of at least one new media program to be tested by reference to one or more media programs having a known audience, characterised in that it comprises:
 - at least a recording means for the said new program,

- Y media program broadcasting means, for broadcasting the said recording means as well as at least one program having a known audience, the total number of the media programs to be tested and the programs having a known audience being equal to Y,
- 5 - a set of X media program receiving means, each receiving means being associated with a control member for zapping from one program to any other available program,
- a main controller linked to the X program receiving means for simultaneously broadcasting the recording means of the program to be tested on these program receiving means, and
- 10 - a recording and measuring system comprising (i) X sensing means for detecting at any time the identity of the program being listened and/or viewed in front of each of the X receiving means, (ii) at least one liaison means for continuously transferring the information consisting of the identity of the detected program to an information storage means, (iii) a supervision means interfaced with each sensing means and able to question the main controller and to permanently scan information transferred to the main controller through the liaison means, (iv) and a computing means for numerically treating information stored in the storage means and to deliver at least an audience rating value of the new media program to be tested with reference to at least another media program having a known audience.
- 15
- 20
- 4. A media program audience forecasting device according to claim 3, characterised in that X is at least 4.
- 25
- 5. A media program audience forecasting device according to claim 3, characterised in that Y does not exceed 6.
- 6. A media program audience forecasting device according to claim 3, wherein the Y media program broadcasting means are video-recorders, and wherein the said device further comprises recording means for the programs having a known audience, and further wherein the main controller simultaneously broadcasts the said recording means on the program receiving means.
- 30

7. A media program audience forecasting device according to claim 3, characterized in that the Y media program broadcasting means are selected from the group consisting of video-recorders and hertzian emitters, the latter being assigned to the broadcasting of programs having a known audience.
5
8. A media program audience forecasting device according to claim 3, wherein a program recording means consists of several sequences separated from each other by a top and further wherein the main controller performs the duty of detecting tops and transmitting this information to the storage means.
10
9. A media program audience forecasting device according to claim 3, wherein a program recording means consists of several sequences each separated from each other by a top consisting of a signal having a frequency between 1,600 and 2,100 Hz and a duration between 1 and 3 seconds, and further wherein the main controller performs the duty of detecting the said tops and transmitting information to the storage means.
15
10. A media program audience forecasting device according to claim 3, characterized in that the storage means further comprises files related to the title and duration of the broadcasted programs.
20
11. A method to quantitatively forecast the audience of at least one new media program to be tested by reference to one or more media programs having a known audience, characterised in that it consists in bringing a sample of viewers/listeners being representative of a desired target in a condition of free listening, during a period of time T, of a set of media programs of the same type consisting of the said new program and at least a program having a known audience, in front of a set of X media program receiving means being linked to a main controller simultaneously broadcasting the recording means of the said programs, the free listening condition being assured by X control members of the X receiving means allowing at any time to change program on the receiving means, the identity of the listened program being at any time detected by X sensing means functionally associated to the X control members, and then continuously retransmitting the identity of the detected program to a computing means for numerically handling it
25
30

and providing audience rating values for the programs available on the X receiving means.

5 12. An audience forecasting method according to claim 11, characterised in that T is between 2 and 60 minutes.

13. An audience forecasting method according to claim 11, characterised in that X is from 4 to 40.

10 14. An audience forecasting method according to claim 11, characterised in that the sample size is from 100 to 200 persons.

15 15. An audience forecasting method according to claim 11, characterised in that the sample is brought in a condition of free listening of a set of programs representing at least 80% of market shares of the relevant media.

20 16. An audience forecasting method according to claim 11, characterised in that, in order to standardize the audience rating values, the method is first implemented with a set of programs having a known audience, the obtained results are compared to those observed by audimetry for the same programs with a sample of a bigger size, and a first corrective coefficient is calculated from this comparison for correcting the audience rating values provided by the method implemented in a second place with a set of programs comprising at least a new program to be tested.

25 17. An audience forecasting method according to claim 11, characterised in that the audience rating values provided by the computing means are corrected by a second corrective coefficient for transforming them into projected audience market shares for taking into account the known audience of programs being
30 unavailable, during the test, on the X program receiving means.

ABSTRACT

The invention concerns sensing means (13) functionally associated with the control member (11) of means receiving media programs (12) so as to detect at all times the identity of the program being listened to on the receiver means (12) and for continuously transmitting said information to computing means (15).

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FIG. 1

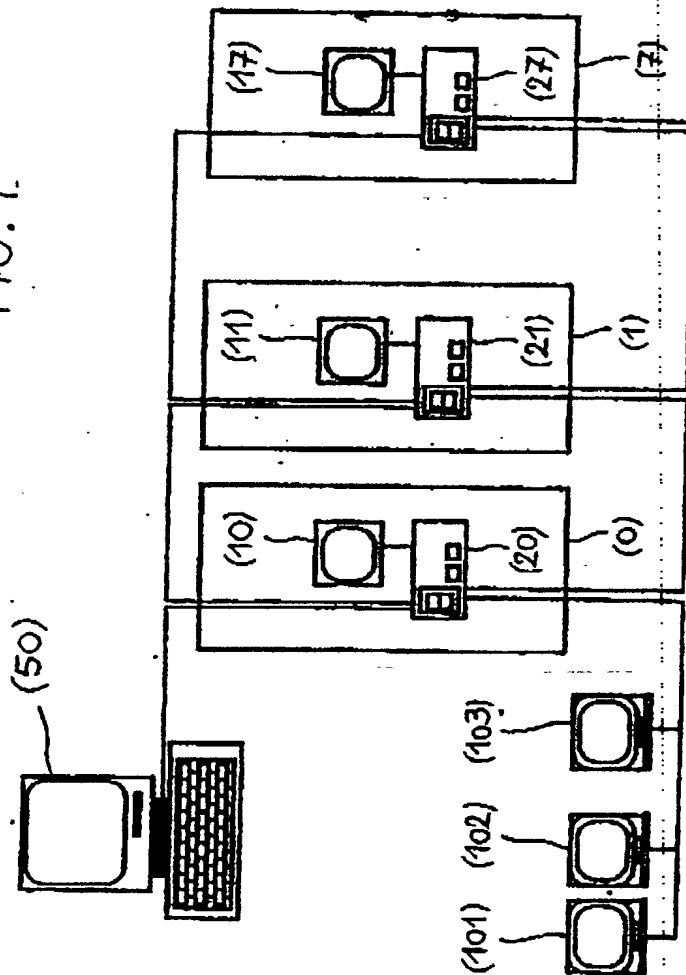
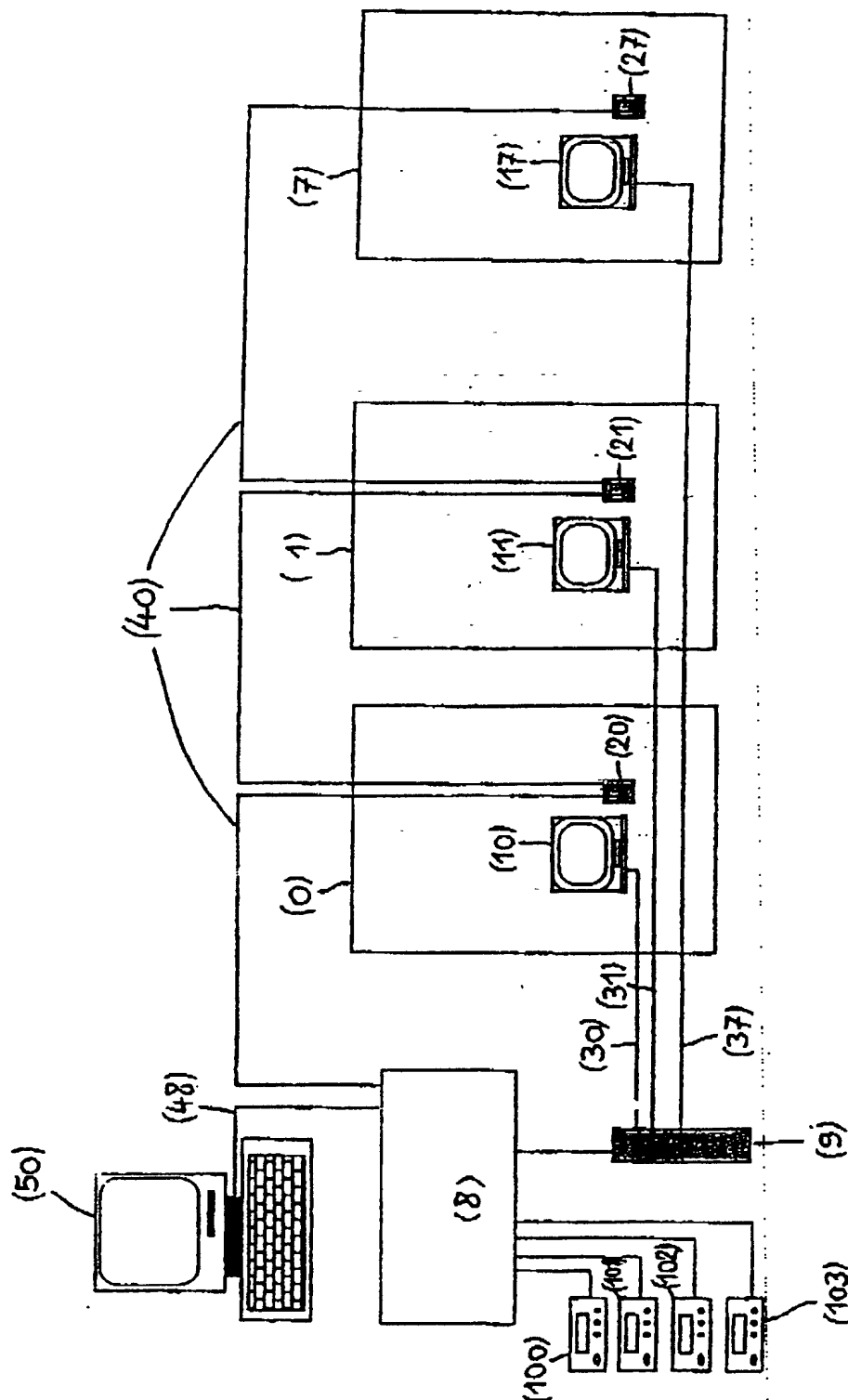


FIG. 2



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(60)

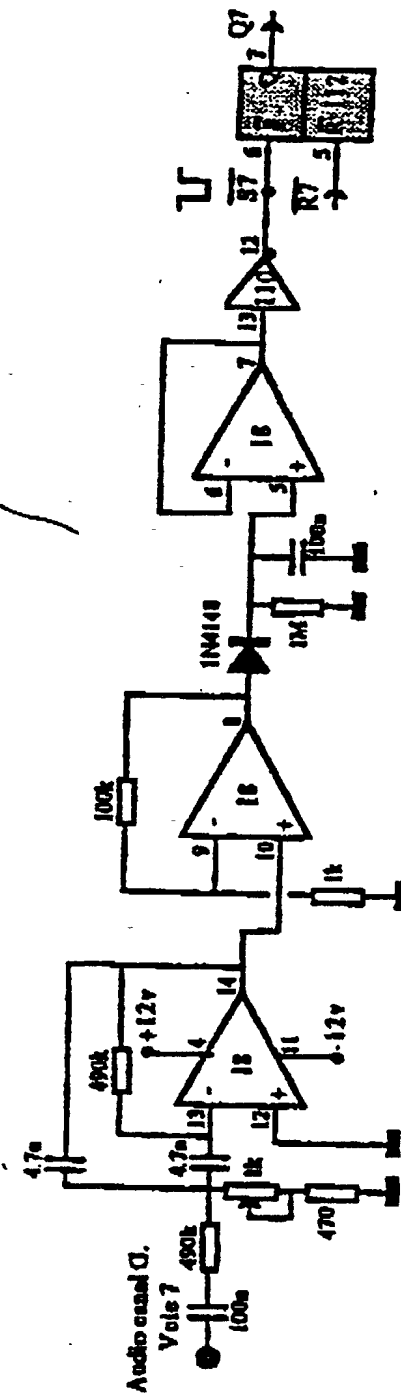


FIG. 3A

FEUILLE DE REMPLACEMENT (REGLE 26)

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PCT/FR00/02369

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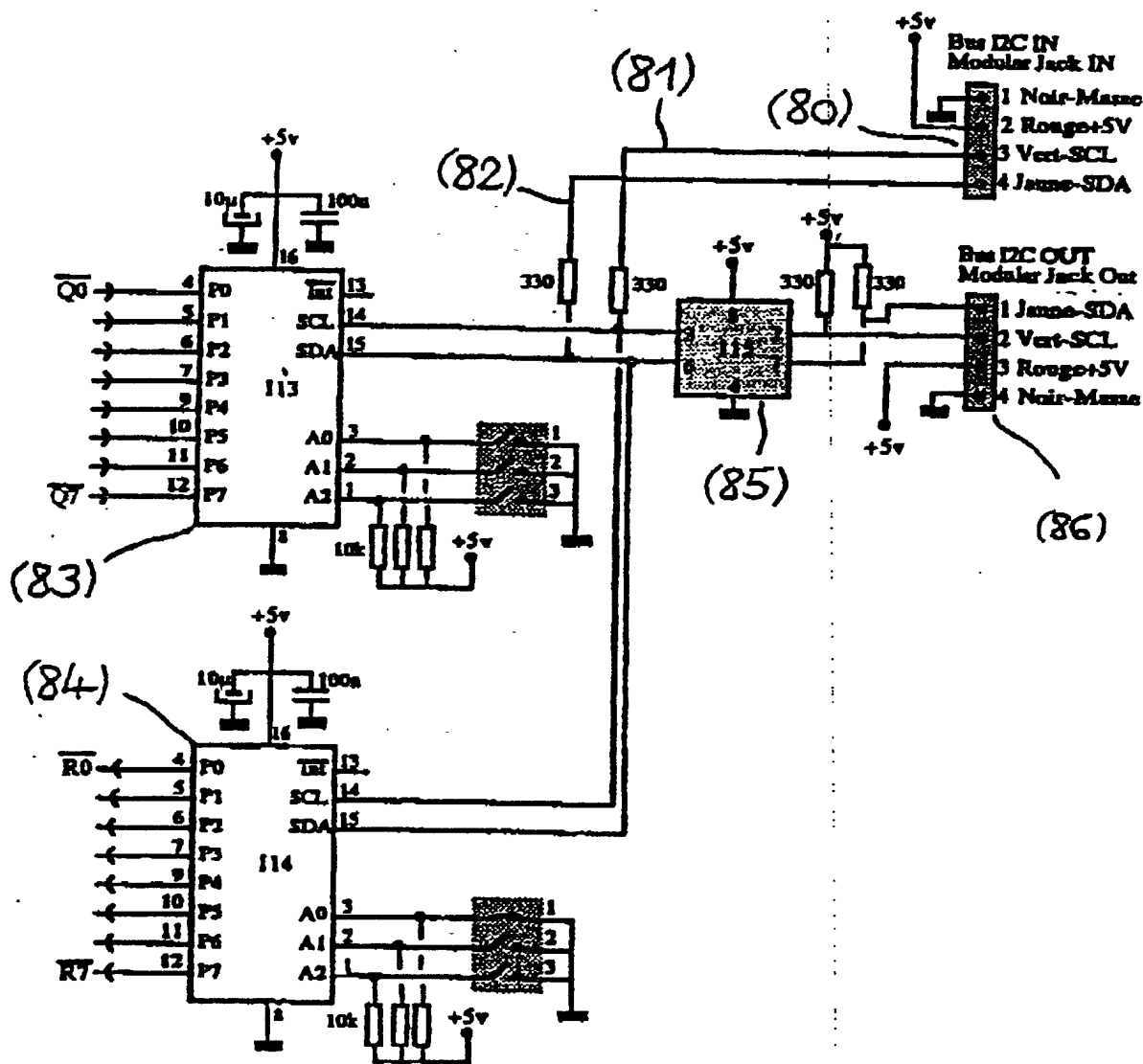


FIG. 3B

FEUILLE DE REMPLACEMENT (REGLE 26)

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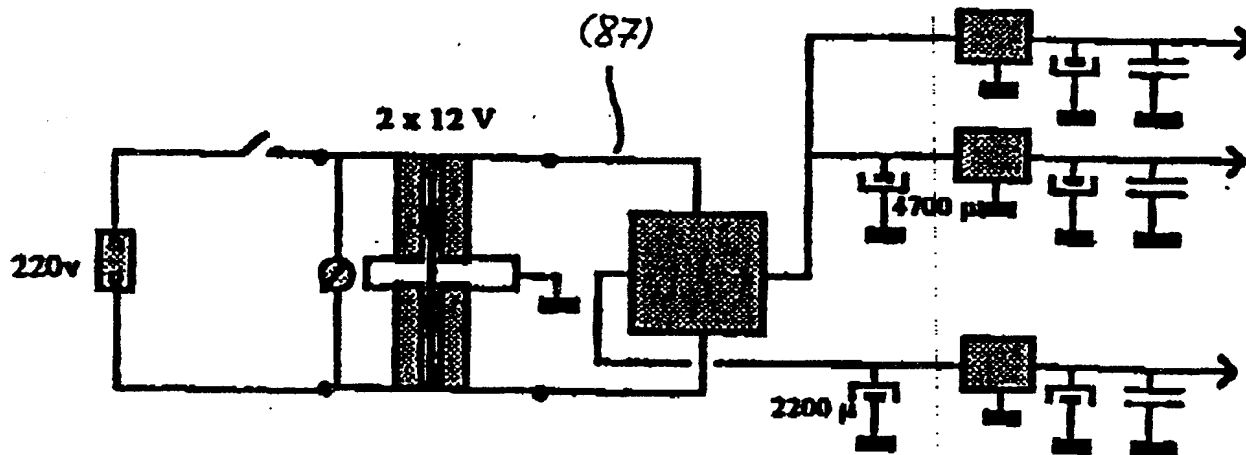
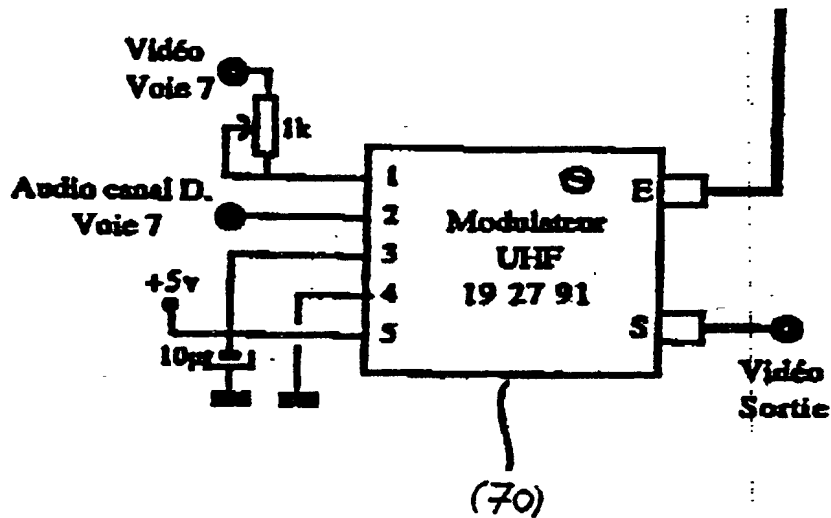


FIG. 3C

FEUILLE DE REMPLACEMENT (REGLE 26)

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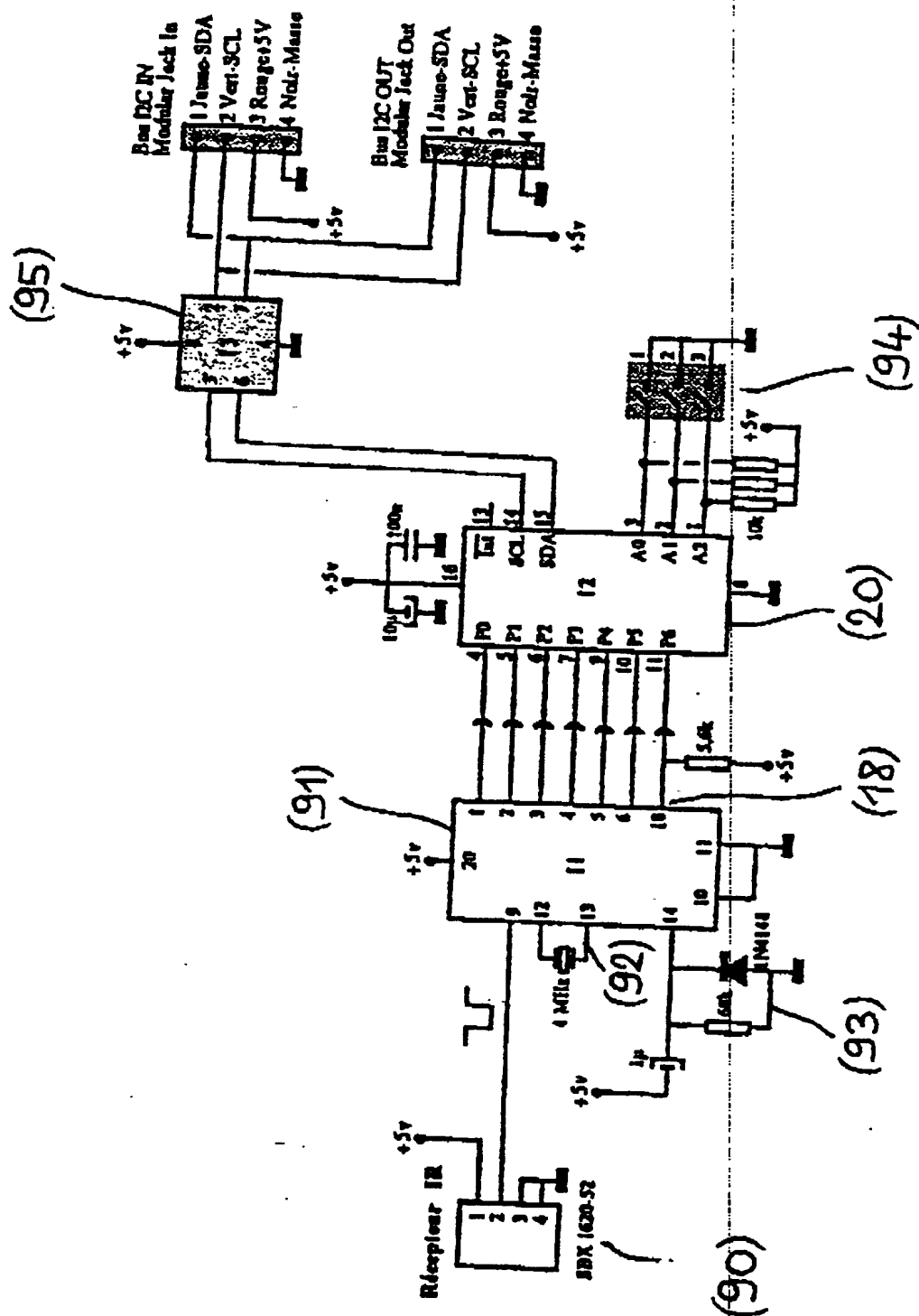
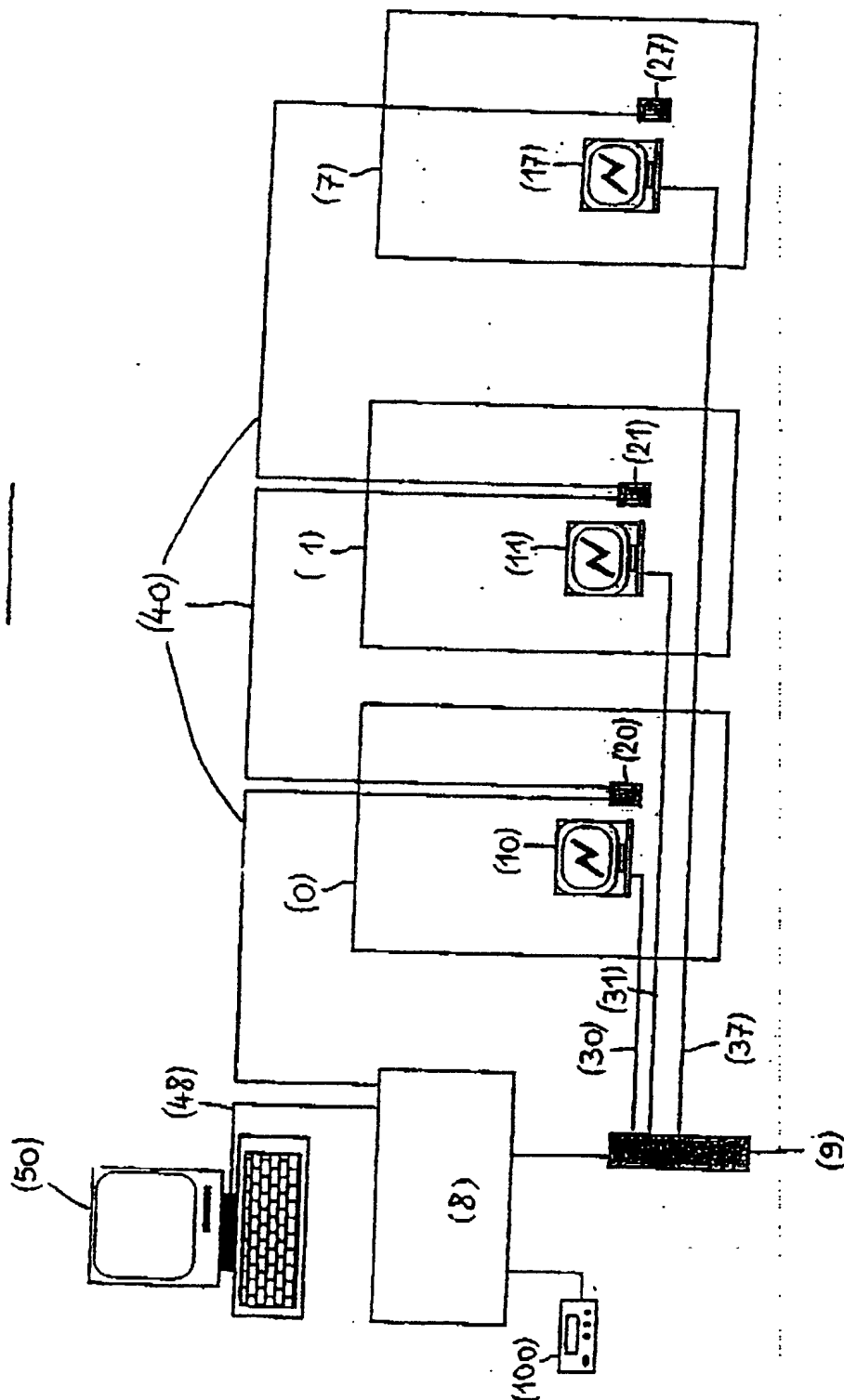


FIG.4

FEUILLE DE REMPLACEMENT (REGLE 26)

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Fig. 5



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	First Named Inventor SOHIER, Emmanuel	
	COMPLETE IF KNOWN	
	Application Number	/ To Be Assigned
	Filing Date	Herewith
	Group Art Unit	
	Examiner Name	

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Electronic Device And Recording System For Measuring Consumer Behaviour To Forecast Media Audience Ratings

the specification of which (Title of the Invention)

☐ is attached hereto
OR
☒ was filed on (MM/DD/YYYY) **24 Aug 2000** as United States Application Number or PCT International Application Number **PCT/FR00/02369** and was amended on (MM/DD/YYYY) (if applicable)

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Prior Foreign Application	Foreign Filing Date	Priority	Certified Copy Attached?
			YES NO
99/12196	France	28 Sep 1999	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>

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[Page 1 of 2]

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Name	SOHIER Emmanuel
Signature	<i>Emmanuel Sohier</i>
Date	20 March 2002

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